AutoDome Modular Camera System

VG4-100 Series

BOSCH

en User's Manual

Preface

This guide describes how to configure and control the VG4-100 Series AutoDome camera.

Audience

This guide is intended for operators who are familiar with CCTV concepts and configuration.

Document Conventions

Convention	Meaning
Bold	Denotes a part, item, or assembly.
Italic	Denotes a reference to another paragraph, figure or table.
<u>Underline</u>	Used to emphasize a point.
`Courier`	Used to denote an item that is selected or must be typed exactly.

Symbols

You may encounter these symbols within the document. Explanatory text accompanies each symbol, which provides additional information detailing the operation or highlighting safety information.

NOTICE! Notices inform you of essential but non-critical information. Read these messages carefully as any directions or instructions contained therein can help you avoid making mistakes.

CAUTION! Cautionary messages provide critical information that help you reduce the chance of losing data or damaging the system. Please heed these messages.

WARNING! Warnings highlight information, that if overlooked may cause damage to the system or result in personal injury. Take warnings seriously.

Customer Support and Service

If this unit needs service, contact the nearest Bosch Security Systems Service Center for authorization to return and shipping instructions.

Service Centers
USA
Phone: 800-366-2283 or 585-340-4162
Fax: 800-366-1329
Email: cctv.repair@us.bosch.com
CCTV Spare Parts
Phone: 800-894-5215 or 408-957-3065
Fax: 408-935-5938
Email: BoschCCTVparts@ca.slr.com
Canada
Phone: 514-738-2434
Fax: 514-738-8480
Europe, Middle East & Asia Pacific Region
Phone: 44 (0) 1495 274558
Fax: 44 (0) 1495 274280
Email: rmahelpdesk@solectron.com
For additional information, see www.boschsecurity.com

Related Publications

Refer to the latest Bosch Security Systems Databook for the most up-to-date datasheets. To obtain a copy of the Databook, please contact your local Bosch representative.
You can also visit the Bosch Security Systems World Wide Web site at:
http://www.boschsecurity.com to view a current listings of our publications.

Table of Contents

1   Getting Started

Install and wire the 100 Series AutoDome according to the *AutoDome Modular Camera System Installation Manual*. A typical system includes a keyboard, matrix switcher, monitor, and appropriate wiring connections. Please refer to the individual product manuals for complete installation and setup instructions for each of the system components.

2   Camera Setup

To assist setup, the VG4-100 Series camera module can be connected to a monitor through the miniature 2.5 mm monitor jack located on the camera circuit board. The monitor jack provides a composite video signal with synchronization. An optional cable (part number S1460, SAP No. F01U500418) is available for making this connection.

To access the monitor jack, remove the bubble and covert liner:

1. Insert a small screw driver through the keyway in the Pendant trim-ring, rotate the dome bubble counterclockwise and remove the dome bubble. For In-Ceiling AutoDomes, you must loosen the small screw in the trim ring before rotating the bubble.
2. Press and hold the two retention buttons on each side of the camera module and then pull off the covert liner. See *Figure 2.1* below.

Removing the covert liner provides access to the menu keys, and the pan and tilt thumbscrew adjustment locks. See *Figure 3.1* on page 4.
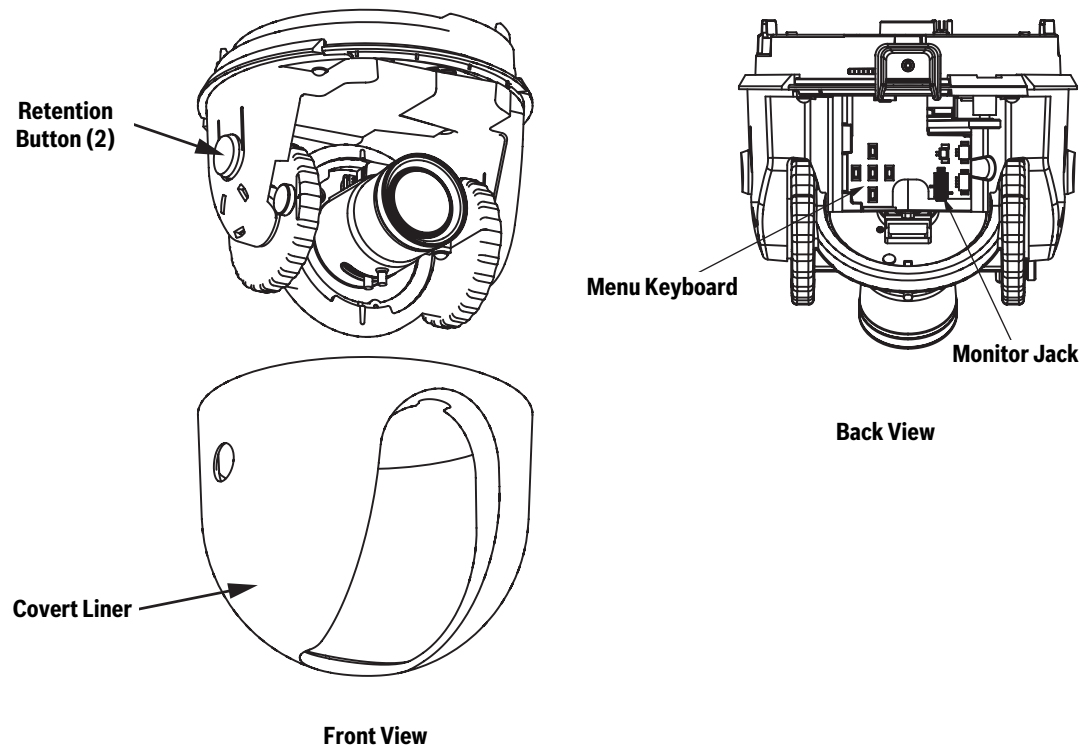

Fig. 2.1 100 Series Camera Module

3   Positioning the Camera

The camera module position can be adjusted along the horizontal, vertical, and diagonal (for azimuth) axes. When adjusting the position, ensure that the picture displayed on the monitor is level. After the covert liner is removed, position the camera by performing the following steps:

⚠ **WARNING!** To prevent damage to the camera module do not rotate the camera past its stops.

1. For horizontal (pan) adjustment, loosen the thumbscrew at the platform base and rotate the camera (left or right) to the desired position. The camera can be rotated up to 360° between stops. If it hits the stop before achieving the desired position, rotate it in the opposite direction. Retighten the thumbscrew to secure the camera.
2. For vertical adjustment (tilt), loosen the thumbscrew at the tilt wheel and position the camera (up or down) to the desired position. The camera can be tilted up to 110° between stops. Retighten the thumbscrew to secure the camera.
3. To compensate for angled ceilings or sidewall mounts, push the camera inward toward its base and rotate it until the image on the monitor is horizontal. The camera can be rotated up to 300° between stops.

⚠ **CAUTION!** The CCD image sensors are highly sensitive and require special care for proper performance and extended lifetime. Do not expose it to direct sunlight or bright spotlights in operating and non-operation conditions. Avoid bright lights in the field of view of the camera.
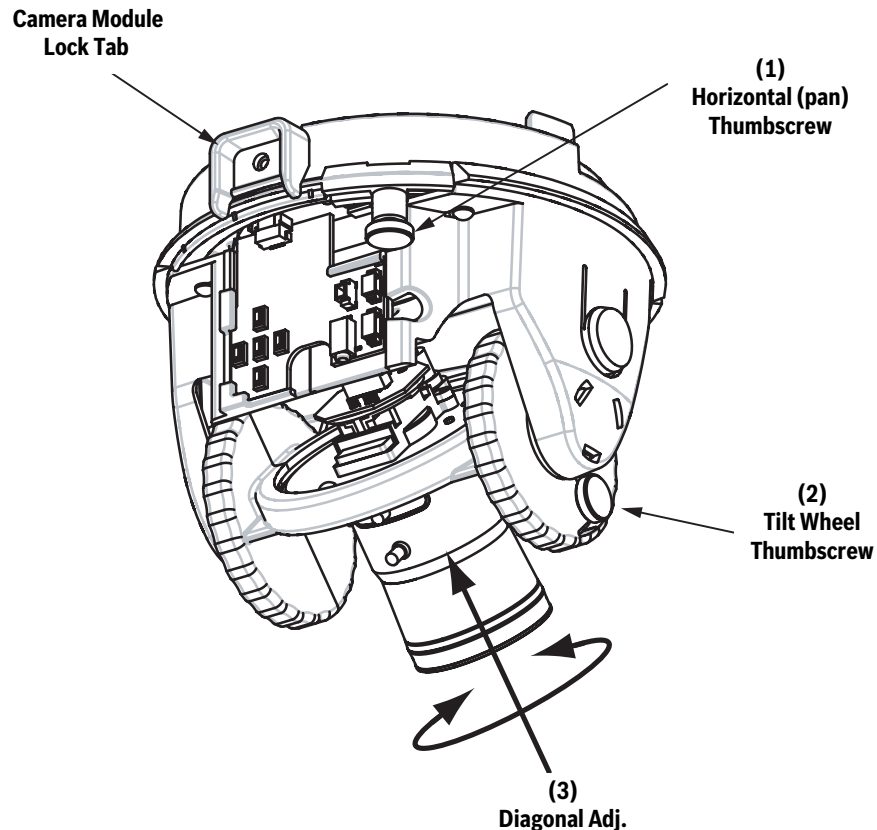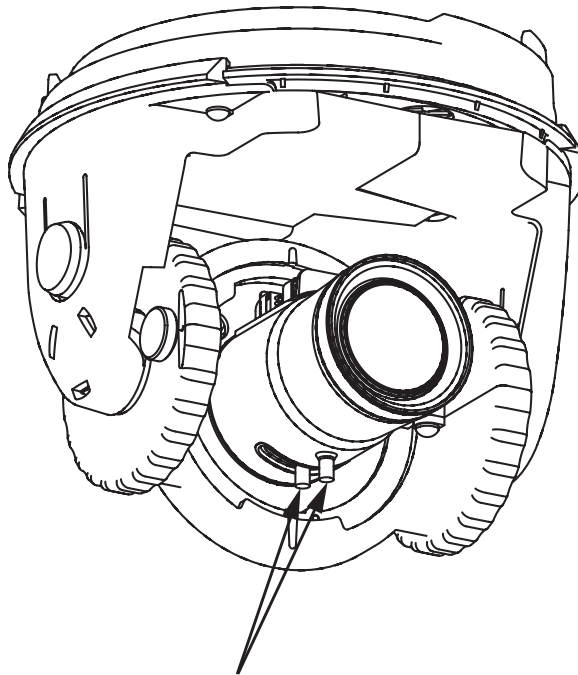

Camera Module Lock Tab

(1) Horizontal (pan) Thumbscrew

(2) Tilt Wheel Thumbscrew

(3) Diagonal Adj.

Fig. 3.1   Camera Position Adjustments

4   Adjusting Focal Length (Zoom) and Focus

To adjust the camera lens focal length and focus, perform the following steps:

1.   Select `Set Focus Now` from the **Install** menu.
2.   To adjust the focal length, loosen the focal (zoom) lock screw and rotate the lens mechanism (WIDE or TELE.) until you achieve the desired field of view. See *Figure 4.1* below.
3.   To focus the image on the monitor, loosen the focus lock screw and turn the lens mechanism (NEAR or FAR) until the image is in focus.
4.   Repeat both these adjustments until the desired view is in focus.
5.   Tighten both adjustment screws.
6.   Exit the **Install** menu.
7.   Remove the monitor jack and replace the covert liner and dome bubble when finished.

**Focus and Zoom
Lock Screws**

Fig. 4.1   Focus and Zoom Adjustment

5   Advanced Setup

The VG4-100 Series camera module normally provides an optimal picture without the need for further adjustments. Advanced setup options, however, are available for obtaining the best results from the camera under special circumstances. There are two upper level On-Screen Display (OSD) menus: the **Main** menu and the **Install** menu.

The **Main** menu allows you to select and setup the picture enhancement functions. The **Install** menu allows you to set the camera ID, focus and synchronization settings. The **Main** and **Install** menus have settings that you can select directly or open to submenus for a more detailed setup.

NOTICE! Active menu selections can vary depending or the combination of camera, CPU and COMM (communication) modules used. The menu selections described in this manual are typical for a VG4-100 Series system.

5.1 Accessing and Navigating Menus

There are five (5) keys used for navigating through the various menus. To access the setup menus, press the center Select key to open and display the **Main** menu. Use the four directional keys to navigate through the menus.
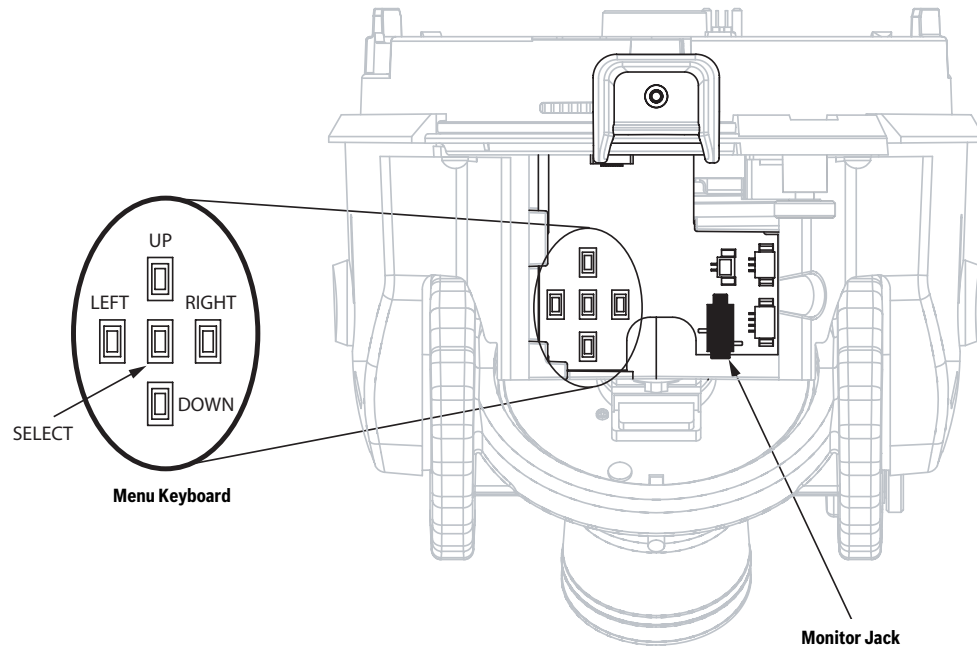

Fig. 5.1 Menu Keyboard and Monitor Jack

Use the menu keys to perform the following:

– To access the **Main** menu or to select a sub-menu item, press the center Menu Select key.
– To open the **Install** menu press the Menu Select key for approximately 1.5 seconds.
– To scroll up or down a menu press the Up or Down keys.
– To move through options or to set parameters, press the Left or Right keys.

> ℹ️ **NOTICE!** To restore a selected menu item to its factory default, quickly press the Menu Select key twice.
> To exit the **OSD** menus from any menu item, hold down the Menu Select key until the **OSD** disappears.

The VG4-100 Series also supports a variety of remote methods to make camera adjustments, including the following:

– A Universal keyboard using Bilinx over coax or UTP. For example, using a Bosch DiBos 8, a Bilinx capable DIVAR, or an Allegiant system.
– A PC running the optional Bosch Configuration Tool for Imaging Devices (CTFID) software with a USB Bilinx adapter (Part No. VP-CFGSFT).
– A PC connected to a TCP/IP network with an optional AutoDome IP module installed.

> ℹ️ **NOTICE!** To prevent unauthorized changes to the camera settings, the camera menu buttons can be disabled using Bilinx communication through the CTFID software. Select the OnLine Config button, then select the Miscellaneous branch and set Camera Buttons to Disable.

5.2 Main Menu Functions

This section provides a graphical representation of the Main menu and descriptions for all functions.

```
┌─────────────┐
│ MAIN Menu   │
│ ALC         │──┐
│ ENHANCE     │  │
│ COLOR       │  │
│ BLC         │  │
│ EXIT        │  │
└─────────────┘  │
                 │   ┌─────────────────┐
                 ├───│ ALC             │
                 │   │ ALC LEVEL       │
                 │   │ SHUTGAIN        │──┐
                 │   │ PEAK AVERAGE    │  │
                 │   │ ALC SPEED       │  │
                 │   │ EXIT            │  │
                 │   └─────────────────┘  │
                 │                        │   ┌─────────────────┐
                 │                        └───│ SHUTGAIN        │
                 │                            │ SHUTTER         │
                 │                            │ DEFSHUT         │
                 │                            │ SENSUP          │
                 │                            │ GAIN            │
                 │                            │ MAXGAIN         │
                 │                            │ DAY/NIGHT[1]    │──┐
                 │                            │ EXIT            │  │
                 │                            └─────────────────┘  │
                 │                                                 │   ┌─────────────────┐
                 │                                                 └───│ DAY/NIGHT       │
                 │   ┌─────────────────┐                               │ DAY/NIGHT       │
                 ├───│ ENHANCED        │                               │ SWITCH LVL      │
                 │   │ AUTO BLACK      │                               │ PRIORITY        │
                 │   │ SHARPNESS       │                               │ IR CONTRAST     │
                 │   │ DNR             │                               │ MONO BURST      │
                 │   │ XF-DYN          │                               │ EXIT            │
                 │   │ EXIT            │                               └─────────────────┘
                 │   └─────────────────┘
                 │   ┌─────────────────┐
                 ├───│ COLOR           │
                 │   │ WHITE BALANCE   │
                 │   │ WB SPEED        │
                 │   │ RED (GAIN)      │
                 │   │ GREEN[2]        │
                 │   │ BLUE (GAIN)     │
                 │   │ SAT             │
                 │   │ EXIT            │
                 │   └─────────────────┘
                 │   ┌─────────────────┐
                 └───│ BLC             │
                     │ BLC             │
                     │ BLC LEVEL       │
                     │ BLC AREA        │──┐  ┌─────────────────┐
                     │ EXIT            │  └──│ AREA            │
                     └─────────────────┘     │                 │
                                             └─────────────────┘
```
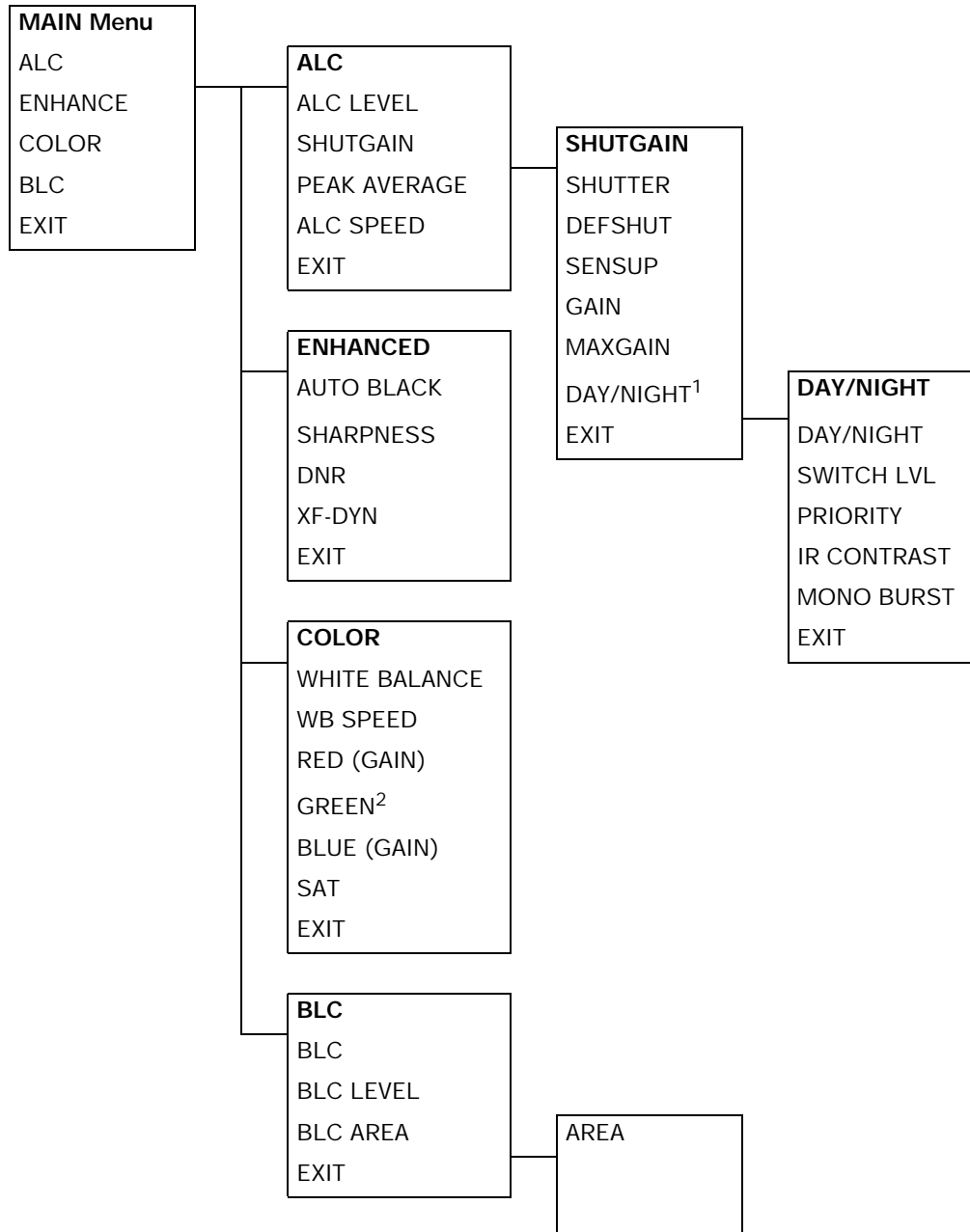
[1] Available in Day/Night version cameras only, other versions show NightSense.

[2] Only available when White Balance is set to Manual mode.

MAIN Menu

Function	Selection(s)	Description
ALC	Selects submenu	Accesses the **Auto Level Control** menu.
ENHANCE	Selects submenu	Accesses the **Picture Enhancement** menu.
COLOR	Selects submenu	Accesses the **Color Control** menu.
BLC	ON, OFF, or selects submenu	– Enables **Back Light Compensation** (BLC). – Accesses the **BLC** submenu.
EXIT		Exits this menu.

ALC Submenu

Function	Selection(s)	Description
ALC LEVEL	(-15 to +15)	Adjusts the video output level.
SHUTGAIN	Selects submenu	Accesses the **Shutter** and **Gain** control menu.
PEAK AVERAGE	(-15 to +15)	Adjusts the balance between peak and average video control.
ALC SPEED	Slow, Medium, Fast	Adjusts the speed of the video level control loop.
EXIT		Returns to the **MAIN** menu.

ALC>SHUTGAIN Submenu

Function	Selection(s)	Description
SHUTTER	AES, FL, FIXED	– **AES** (Auto Electronic Shutter): The camera automatically sets the optimum shutter speed. – **FL** (Flickerless): Avoids interference from light sources. – **FIXED**: Allows the user to define the shutter speed.
DEFSHUT	1/60 (1/50), 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/5000, 1/10K	The camera tries to maintain the selected shutter speed as long as the light level of the scene permits. (Only available if **SHUTTER** is set to **AES** mode.)
FIXSHUT	1/60 (1/50), 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/5000, 1/10K	Selects the shutter speed. (Only available if **SHUTTER** is set to **FIXED** mode.)
SENSUP	OFF or (2x to 10x)	Selects the sensitivity factor the camera is set to. (Only available if **SHUTTER** is set to **AES** mode.)
GAIN	AGC, FIXED	– **AGC** mode: The camera automatically sets the gain to the lowest possible value needed to maintain a good picture. – **FIXED** mode: The gain is set at a predefined value.
MAXGAIN	(0 to 26)	Selects the maximum value the gain can have during **AGC** operation.
FIXGAIN	(0 to 26)	Selects the gain setting. (Only available if **GAIN** is set to **FIXED** mode.)

Function	Selection(s)	Description
DAY/NIGHT[3]	Selects submenu	Accesses the **Day/Night Control** menu.
NIGHTSENSE	AUTO, OFF, FORCED	– **AUTO** mode: Camera automatically switches to NIGHTSENSE in low light conditions. – **OFF** mode: NIGHTSENSE is turned off. – **FORCED** mode: The camera is set to NIGHT-SENSE (black and white) mode
EXIT		Returns to the **ALC** menu.

[3] Only available in Day/Night version cameras, color versions show NightSense.

NOTICE! If **SensUp** is active, some noise or spots may appear in the picture. This behavior is normal. **SensUp** may cause some motion blur on moving objects.

Depending on the camera GAIN setting, unrelated menu items are not active.

ALC > SHUTGAIN > DAY/NIGHT Submenu

Function	Selection(s)	Description
DAY/NIGHT	AUTO, COLOR, MONO	– **AUTO**: Switches the filter between COLOR and MONO depending on the scene illumination level. – **COLOR**: Use for normal daylight conditions. – **MONO**: Removes the IR filter, providing full IR sensitivity.
SWITCH LEVEL	(-15 to +15)	Sets the video leveling threshold when the camera switches to monochrome operation.
PRIORITY	COLOR, MOTION	In **AUTO** mode: – **COLOR**: Displays a color image as long as the light level permits. – **MOTION**: Avoids motion blur as long as the light level permits.
IR CONTRAST	NORMAL, ENHANCED	– **NORMAL**: Optimizes contrast in monochrome applications with visible light illumination. – **ENHANCED**: Optimizes contrast in applications with high IR illumination levels.
MONO BURST	ON, OFF	– **ON**: The color burst remains active, even in Monochrome mode. – **OFF**: The color burst in the video signal is switched **OFF** in Monochrome mode.
EXIT		Returns to the **SHUTGAIN** menu.

NOTICE! Depending on the camera's **DAY/NIGHT** setting, unrelated menu items are not active.

ENHANCED Submenu

Function	Selection(s)	Description
AUTO BLACK	ON, OFF	**ON**: Automatically increases the visibility of details.
SHARPNESS	(-15 to +15)	Adjusts the sharpness of the picture. Zero (0) is the default position.
DNR (dynamic noise reduction)	AUTO, OFF	**AUTO**: Automatically reduces the noise in the picture. This option may cause some motion blur with moving objects. **OFF**: DNR is turned off.
XF-DYN	OFF, LOW, MID, HIGH	**XF-DYN** mode: Automatically optimizes picture contrast.
EXIT		Returns to the **MAIN** menu.

COLOR Submenu

Function	Selection(s)	Description
WHITE BALANCE	ATW, AWB HOLD, MANUAL	– **ATW** (Automatic White Balance): Allows the camera to constantly adjust for optimal color reproduction. – **AWB HOLD**: Puts the ATW on hold and saves the color settings. – **MANUAL**: Allows the red, green and blue gain to be set manually to a desired position.
WB SPEED	Slow, Medium, Fast	Adjusts the speed of the white balance control loop when in ATW mode.
RED-GAIN RED	(-5 to +5) (-30 to +30)	– In ATW mode: Adjusts the red gain to optimize white. – In Manual mode: Adjusts red gain.
GREEN	(-5 to +5)	In Manual mode: Adjusts the green gain. (Not available in ATW mode.)
BLUE-GAIN BLUE	(-5 to +5) (-30 to +30)	– In ATW mode: Adjusts the blue gain to optimize white. – In Manual mode: Adjusts the blue gain.
SAT	(-15 to +5)	Adjusts the color saturation. (-15 produces a monochrome picture.)
EXIT		Returns to the **MAIN** menu.

Back Light Compensation (BLC) Submenu

Function	Selection(s)	Description
BLC	ON, OFF	**ON**: The video level optimizes the selected area of the image. Parts outside this area may be underexposed or overexposed, which is normal.
BLC LEVEL	(-15 to +15)	Adjusts the balance between the selected **BLC** area and its surroundings.
BLC AREA	Selects submenu	Accesses the **Back Light Compensation** area menu. To size the BLC area: 1. Select the AREA option from the **BLC** menu. The monitor displays the current area with the upper left corner flashing. 2. Move the flashing corner of the image by using the Up, Down, Left and Right keys to change the size and shape of the area. 3. Press the center Menu Select key to move the flashing cursor to the opposite (or diagonal) corner, which can now be used to change the size and shape of the area. 4. Press the Menu Select key again to save the area and to exit the **AREA** menu.
EXIT		Returns to the **MAIN** menu.

5.3   Install Menu Functions

This section provides a graphical representation of the Install menu and descriptions for all functions.

Install Menu

INSTALL Menu
CAMERA ID
SET FOCUS NOW
COMM
SYNC
DEFAULTS
EXIT

INSTALL CAMERA ID
CAMERA ID
ID POSITION
EXIT

INSTALL SYNC
SYNC
VPHASE
EXIT

INSTALL DEFAULTS
RESTORE ALL?
EXIT

INSTALL Menu

Function	Selection(s)	Description
CAMERA ID	Selects submenu	Accesses the **Camera ID** submenu.
SET FOCUS NOW		Completely opens the lens iris for best focus. The recommended focus procedure is: 1. Unlock the focus locking screw. 2. From the INSTALL menu highlight SET FOCUS NOW. 3. Turn the lens focus adjustment as required. 4. Tighten the lens focus locking screw. 5. Exit the menu selection.
COMM	ON, OFF	Turns on Bilinx communication. See notice below.
SYNC	Selects submenu	Accesses the synchronization functions.
DEFAULTS	Selects submenu	Returns all settings for all modes to their default.
EXIT		Exits this menu.

> **(i)** **NOTICE!** When using Bilinx control, the **COMM ON/OFF** menu selection is not active. This function can be accessed only through the camera menu keys when the CTFID software is not actively running.

CAMERA ID Submenu

Function	Selection(s)	Description
CAMERA ID	Selects submenu	To enter up to a 17-character camera name: 1. Press the `Menu Select` key to enter the Camera ID string. 2. Enter up to a 17-character string name for the camera. 3. Use the `Up` and `Down` keys to select a character. 4. Use the `Left` and `Right` keys to change position in the string. 5. Press the `Menu Select` key to save and to exit the character string. 6. Exit the **Camera ID** menu.
ID POS	OFF, TOP, BOT	Use left or right keys to select: **OFF**: Camera ID not displayed. **TOP**: Camera ID displayed at upper left corner of display. **BOT**: Camera ID displayed at lower left corner of display. (The camera ID is not displayed when the **OSD** menu is open.)
EXIT		Returns to the **INSTALL** menu.

SYNC Submenu

Function	Selection(s)	Description
SYNC	INTERNAL, LINE LOCK	**INTERNAL**: Synchronizes the camera to an internal crystal. (default) **LINE LOCK**: Synchronizes the camera to AC power and eliminates picture roll in multi-camera systems.
VPHASE	(0° to 358°)	Adjusts the vertical phase offset in **LINE LOCK** mode. (Only active if a valid power supply frequency is detected.)
Exit		Returns to the **INSTALL** menu.

DEFAULTS Submenu

Function	Selection(s)	Description
RESTORE ALL?	NO, YES	Use the left or right keys to select: **NO**: To not change settings. **YES**: To restore all defaults. You receive a confirmation message.
Exit		Returns to the **INSTALL** menu.

6   Configuring the VG4-100 Series IP AutoDome

The VG4-100 Series AutoDome can be ordered with an optional IP module that allows the AutoDome to transmit images over a TCP/IP network. It also allows users to configure the camera display settings, camera operating settings, and to configure the network parameters.

The VG4-100 Series IP AutoDome incorporates a network video server in the IP module. The primary function of the server is to encode video (and control data) for transmission over a TCP/IP network. With its MPEG-4 encoding, it is ideally suited for IP communication and for remote access to digital video recorders and multiplexers. The use of existing networks means that integration with CCTV systems or local networks can be achieved quickly and easily. Video images from a single camera can be simultaneously received on several receivers.

6.1   Overview of Functions

The IP module adds the following functionality to a VG4-100 Series system:

Function	Description
Receiver	You can use an MPEG-4 compatible hardware decoder (for example the VIP XD) as a receiver. Computers with decoding software such as VIDOS or computers with the Microsoft Internet Explorer Web browser installed can also receive video images.
Video encoding	The camera uses the MPEG-4 compression standard and ensures that the data rate remains low even with high image quality and can also be adapted to local conditions within wide limits.
Dual Streaming	Encodes dual data streams simultaneously according to two individually customized profiles. This feature creates two (2) data streams per camera that can serve different purposes. For example, one (1) data stream for local recording and one (1) data stream optimized for transmission over the Local Area Network (LAN).
Multicast	Enables simultaneous, real-time transmission to multiple receivers. The network must implement the UDP and IGMP V2 protocols as a prerequisite for Multicasting.
Configuration	You can configure all camera settings from a Web browser connected to the local network (Intranet) or connected to the Internet. You can also update the firmware, load device configurations, store configuration settings, and copy these settings from one camera to another.
Snapshots	Allows you to take and store individual video frames as JPEG images from the Web browser interface.
Backup	You can save video images as a file on a computer's hard drive from the Web browser interface.

6.2 System Requirements

The VG4-100 Series IP AutoDome requires specific software or hardware to allow a user to view live images and to configure camera settings over a TCP/IP network. These requirements are:

– A computer with the Microsoft Windows 2000 or XP operating system, network access, and the Microsoft Internet Explorer Web browser version 6.0 or later, or
– A computer with Microsoft Windows 2000 or XP operating system, network access, and reception software such as the Bosch VIDOS software or Bosch Dibos 8.0. (See www.boschsecurity.com for more information about Bosch software and hardware for IP cameras), or
– An MPEG-4 compatible hardware decoder from Bosch Security Systems (such as the VIP XD) as a receiver and a connected video monitor. (See www.boschsecurity.com for more information about Bosch software and hardware for IP cameras).

If you choose to use a computer running Microsoft Internet Explorer or any of the Bosch software, the computer must conform to the following minimum requirements:

– Processor: 1.8 GHz Pentium IV
– RAM: 256 MB
– Video system: 128 MB video memory, 1024x768 display with a minimum of 16-bit color
– Network interface: 100-BaseT
– DirectX: 9.0c
– Microsoft Internet Explorer, version 6.0 or higher
– Bosch MPEG ActiveX utility
– Java Virtual Machine (supplied)

(i) NOTICE! Ensure that the graphics card is set to 16-bit or 32-bit color. If you need further assistance, contact your PC system administrator.

6.3 Connecting the IP AutoDome to the PC

1. Install the IP AutoDome according to the instructions in the *Modular AutoDome Camera System Installation Manual.*
2. Connect an Ethernet cable from the IP AutoDome RJ45 connector to a dedicated network switch to bypass the Local Area Network (LAN).
3. Connect the dedicated network switch to the RJ45 connector on the PC . (See option A below.)

(i) NOTICE! The IP AutoDome can also be connected directly to a PC using an Ethernet crossover cable with RJ45 connectors. (See option B below.)
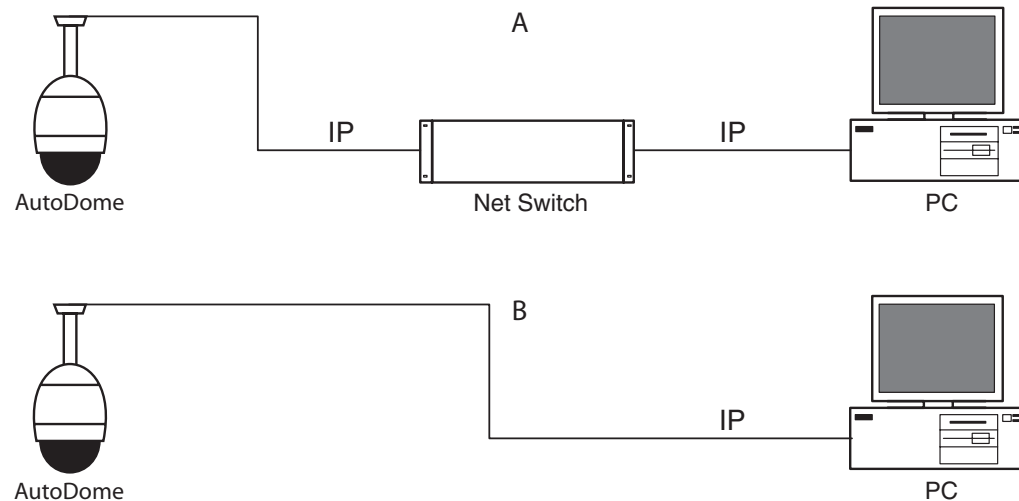
Fig. 6.1   AutoDome IP System Configuration

6.4   Configuring the IP Camera

To operate the camera in your network you must assign it a valid network IP address. The default IP address is 192.168.0.1, but you may have to change this address if it conflicts with another device on your network.

To properly configure the camera for your network, you need the following information:

–   Unit IP address: An identifier for the camera on a TCP/IP network. For example, 140.10.2.110 is a valid syntax for an IP address.
–   Subnet mask: A mask used to determine what subnet an IP address belongs to.
–   Gateway IP address: A node on a network that serves as an entrance to another network.
–   Port: An endpoint to a logical connection in TCP/IP and UDP networks. The port number identifies the use of the port for use through a firewall connection.

> **NOTICE!** Ensure that the network parameters of your cameras are available before you begin configuration.

The IP AutoDome defaults are as follows:

–   IP Address: 192.168.0.1
–   Subnet Mask: 255.255. 255.0
–   Gateway IP Address: 0.0.0.0

6.4.1   Installing the Required Software

To view live video, you must install Bosch MPEG ActiveX, DirectX, and Java Virtual Machine.

To install the software do the following:

1.   Insert the IP AutoDome software CD into the CD-ROM drive of the computer.
2.   Click the Windows **Start** button, select **Run**, and then **Browse** to the CD drive.
3.   Open the **Install** folder, then the `MPEG_ActiveX` folder and double click on the `MPE-GAx.exe` file. Follow the on-screen instructions to install the Bosch MPEG ActiveX.
4.   Open the **Tools** folder, the `DirectX9` folder, and then the `DirectX9.0c` folder and double-click on the `dxsetup.exe` file. Follow the on-screen instructions to install DirectX.
5.   Open the **Tools** folder, then the **Java VM** folder and double click on the executable file. Follow the on-screen instructions to install Java.

6.4.2   **Changing Network Settings**

The IP Module has a default IP address of 192.168.0.1. To change the IP address or any network settings, you can use the Configuration Manager software supplied on the CD or the AutoDome IP Web Server.

> **(i)** **NOTICE!** Contact your local network administrator for a valid IP address, Subnet Mask, and a Gateway IP Address.

Using Configuration Manager

Configuration Manager is an optional network utility provided on the AutoDome CD. To install the Configuration Manager software:

1.   Browse to the CD and double click on the executable file. Follow the on-screen instructions to install Configuration Manager and .NET Framework if required.
2.   Use the Configuration Manager Manual provided in the **Documentation** folder on the CD to make any configuration changes.

Using the AutoDome IP Web Server

The VG4-100 Series IP AutoDome incorporates a network video server in the IP module. To configure the camera using the AutoDome IP web server:

> **(i)** **NOTICE!** Depending on the PC network security settings, the user may have to add the new IP address to the browser's "trusted sites" list for the browser controls to operate.

1.   Set the IP address on the PC to `192.168.0.10` to ensure that the PC and the IP AutoDome are on the same Subnet.
2.   Launch Microsoft Internet Explorer and navigate to the following URL:
     `http://192.168.0.1`.
     The Web browser opens the **Livepage** for the IP AutoDome and you receive a security warning message.
3.   Check the `Always Trust` box; then select `YES`.
4.   Click the `Settings` link, located at the top of the Livepage.
5.   Click the `Service Settings` link, located in the left pane of the Settings page.
6.   Click the `Network` link to open the Network Settings page.

Fig. 6.2   Network Settings Page

7.   Configure the settings on this page based on the addresses provided by your local net-
      work administrator.

ⓘ   **NOTICE!** Click on the **Help on this page?** link if you need more information.

---

8.   Click the `Set` button to save the settings.
9.   Launch another instance of Microsoft Internet Explorer.
10.   Type the original IP address followed by `/reset` (for example,
      `http://192.168.0.1/reset`) in the address bar and click `Go` to restart the IP
      AutoDome. Once you restart the IP AutoDome, use the new IP Address to access the **Live-
      page**.
11.   Disconnect the IP AutoDome Ethernet cable from the dedicated network switch and
      reconnect the Ethernet cable to the local area network (LAN).

6.5   Viewing Live Images

Once the the network cables are properly connected and the IP AutoDome has a valid IP address, you can view live images over the TCP/IP network using Microsoft Internet Explorer.

6.5.1   Establishing a Connection

Once all the required software is installed on your local computer and the IP AutoDome is configured with the proper IP addresses, you can connect to the camera using Microsoft Internet Explorer.

1.   Launch Microsoft Internet Explorer.
2.   Type the IP address of the IP AutoDome into the browser's Address Bar and click `Go`.
3.   If the AutoDome is password-protected, the system prompts you to enter a password.
4.   Type the user name and the associated password in the appropriate fields.
5.   Click `OK` to open the IP AutoDome Livepage. The Livepage displays the video image from the camera.

(i) **NOTICE!** The IP AutoDome allows a maximum of five (5) standard connections and 25 multicast connections. If you cannot connect to the AutoDome, you may have exceeded the maximum number of connections for the device or network configuration.

6.5.2   Configuring Data Streams

The IP AutoDome encodes dual data streams simultaneously according to two individually customized profiles. This feature creates two (2) data streams per camera that can serve different purposes. For example, one (1) data stream for local recording and one (1) data stream optimized for transmission over the Local Area Network (LAN). In addition, the camera offers a Motion JPEG (M-JPEG) option. M-JPEG is a video format that uses JPEG picture compression in each frame of the video.

Click either the `MPEG-4 Stream 1`, `MPEG-4 Stream 2` or `M-JPEG` tab to switch between the different displays for the camera image.

7   Trouble Shooting Guide

Problem	Solution

No video	**If using a Bosch G4 Pendant Power Supply Box:**
	1. Check that the Green LED in the Power Supply Box is on. This LED indicates mains power through the transformer.
	   If the Green LED is off, then:
	2. Check the FX101 fuse for mains power to the Power Supply Box.
	   If O.K., then:
	3. Check the FX102 fuse for 24 V power to the AutoDome Pendant.
	   If O.K., then:
	If using a non-Bosch power supply:
	4. Check that the mains power to the Power Supply Box is on.
	   If O.K., then:
	5. Check that there is 24 V output from the transformer.
	   If O.K., then:
	6. Confirm that the power supply meets the Bosch AutoDome power ratings. See the AutoDome Datasheet for specifications.
	   If O.K., then:
	7. Check the connector on top of the AutoDome housing for bent pins.
	   If O.K., then:
	8. Check the integrity of all wires and terminal connections to the AutoDome.
	   If O.K., then:
	If there is power to the AutoDome, then:
	9. Remove the camera and CPU modules from the AutoDome housing and check that the Green LED on the housing power supply board is on.
	   If the Green LED is off, then:
	10. Check that the fuse on the housing power supply board is good. (Try replacing the unit, if an extra camera module is available.)

Local Keys Disabled	1. This message appears if the Camera Menu Keyboard has been disabled through the CTFID tool. Select OnLine Config>Installer Options>Miscellaneous>Camera Buttons>Disable.

No remote menu access	1. The 100 Series AutoDome utilizes either Bilinx or optional TCP/IP for remote menu access.
	2. Ensure that all coax, fiber and Ethernet cables are properly connected. See the *AutoDome Modular Camera System Installation Manual*.
	   If O.K., then:
	3. Check if you can access the AutoDome OSD menus.
	   If O.K., then:
	If IP AutoDome, then:
	4. Ensure that the network settings are properly set for the LAN. See *Section 1: Configuring the VG4-100 Series IP AutoDome*.

Intermittent remote menu access	1. Check that all wiring meets Bosch recommended standards, specifications and distances. See the *AutoDome Modular Camera System Installation Manual*.

Picture is dark	1. Check that the Gain Control is set to **AGC**.
	If O.K., then:
	2. Check that the **ALC** level is set to the appropriate level.
	If O.K., then:
	3. Check that the video coax is terminated with 75 Ω only at the head end. (Double termination causes dark video.)
	If O.K., then:
	4. Check that the camera lens cover is removed.
	If O.K., then:
	5. Check that the maximum coax distance has not been exceeded. See the *AutoDome Modular Camera System Installation Manual*.
	If O.K., then:
	6. Restore all camera settings using the **Install Menu**.
Colors are not correct	1. Reset the White Balance to the appropriate selection.
	If O.K., then:
	2. Check that the maximum coax distance has not been exceeded. See the *AutoDome Modular Camera System Installation Manual*.
	If O.K., then:
	3. Restore the White Balance setting to **ATW** in the **Color Menu.**
Background is too bright to see subject	1. Turn on backlight compensation (BLC).
	2. Adjust the BLC level.
	3. Adjust the BLC area.
Video is rolling, noisy or distorted	1. Ensure that the Sync Mode is set to Internal (crystal).
	If O.K., then:
	2. Check that the maximum coax distance has not been exceeded. See the *AutoDome Modular Camera System Installation Manual*.
	If O.K., then:
	3. Check the integrity of all BNC connectors and splices.
	Note: Connecting a network cable to the interface board of a non-IP AutoDome causes video distortion.
	4. Remove network cable from the interface board RJ-45 connector.
Day/Night camera does not switch automatically when image is dark.	1. Check that the Day/Night mode is set to **AUTO**.
	If O.K., then:
	2. Set Gain Control to **AGC**.
Inside of EnviroDome bubble is foggy.	**If using a Bosch power supply box:**
	1. Check the FX103 fuse in the Bosch Power Supply Box for power (24 V) to the heater module.
	If O.K., then:
	2. Check all wiring and connector pins to the heater module.
	If using a non-Bosch power supply,
	3. Confirm that the power supply meets the Bosch AutoDome power ratings. See the AutoDome Datasheet for specifications.
	If O.K., then:
	4. Check the mains input line voltage.
	If O.K., then:
	5. Check that the maximum wire length from the power supply has not been exceeded. See the *AutoDome Modular Camera System Installation Manual*.

8   Glossary of CCTV Terms

A

Address

Each AutoDome has a numerical address in the control system in which it is located. This allows the appropriate dome to be operated. The address may be set locally using the Bilinx Configuration Tool for Imaging Devices (CTFID) or remotely using the Fast Address function (see Fast Address).

Advanced Alarm Control (AAC)

AutoDome's flexible and sophisticated alarm management subsystem that allows "rules" to be created that define which input(s) activate one or more outputs (see Alarm Rule). In its most basic form, a rule could define which input(s) should activate which output(s). In a more complex form, a rule can be programmed to take a specific keyboard command (pre-existing or not) and perform a dome function, or any combination of the above.

Advanced Diagnostics

Bosch's combination of built-in On Screen Displays (OSD) and status LEDs that are used to check critical camera parameters such as internal temperature, input voltage levels, and network connectivity. This allows a technician to quickly determine the source of problems and ensure that the dome is functioning within correct operating limits.

Aperture

The size of the opening in the iris, which controls the amount of light that reaches the CCD Sensor. The larger the F-Stop numbers, the less light reaches the sensor.

AutoBlack

A technique of boosting the video signal level to produce a full amplitude video signal even when the scene contrast is less than full range (glare, fog, mist, etc.). The darkest part of the signal is set to black and the lightest part to white, thus increasing the contrast.

AutoDome

Fully integrated, high speed, pan/tilt/zoom camera built into a protective dome housing allowing full and continuous 360° coverage of the scene.

Auto Focus

The lens continuously adjusts to the correct focus automatically for the sharpest picture.

AutoIris

The lens iris opening is automatically adjusted to allow the correct illumination of the camera sensor.

Automatic Gain Control (AGC)

The electronics that regulate the gain or amplification of the video signal.

AutoPan

The camera pans continuously between right and left limit settings.

AutoPivot

As the camera tilts through the vertical position, the camera is rotated to maintain the correct orientation of the image.

AutoPlayback

This function records the sequence of movements of the AutoDome PTZ for later playback allowing a set pattern to be repeated automatically. This function is often called Guard Tour.

AutoScaling

As the camera zooms in to increase the size of objects on the monitor screen, the pan and tilt speeds are reduced so that the relative speed on the screen remains constant for similar joystick control positions.

AutoTrack

A patented technology that integrates motion detection into the camera allowing tracking of an object and zooming in to optimize size and perspective.

Auto White Balance (AWB)

A feature that allows a color camera to automatically adjust its output color to give a natural color independent of the lighting used.

B

Back Light Compensation (BLC)

Selectively amplifies parts of the image to compensate for large contrast differences when only a portion of the image is brightly lit (e.g. a person in a sunlit doorway).

Balun (Balance Unbalanced)

A device that converts a balanced video signal (e.g. as used on twisted pair) line to an unbalanced signal (e.g. as used on coax). In a balanced line, such as twisted pair, both wires are electrically equal. In an unbalanced line such as coax, one line has different electrical properties than the other.

Bilinx

A communications format that allows remote control, configuration and updates to be performed over the video cable (Coax or Passive UTP).

Biphase

Pan/Tilt/Zoom protocol for Bosch products.

C

Cable Category

Application and bandwidth rating system for UTP cabling. Categories 1 through 6 are based on EIA/TIA-568-B standards. Category is typically abbreviated CAT. UTP Category 5, 5e, and 6 are used for Ethernet data cabling applications. Ethernet wiring distances are limited to a maximum of 100m (328ft.) when using UTP wiring.

Cable Compensation

A technology that prevents image degradation caused by signal losses when transmitting video over long cable lengths.

CCD Format

Indicates the size of the camera sensor used. In general, the larger the sensor, the more sensitive the camera and the better the image quality. The format is quoted in inches, for example 1/4" or 1/3". See Charge Coupled Device (CCD).

CCD (Charge Coupled Device)

The most common type of solid state image sensor used in CCTV cameras. The sensor converts light energy into electrical signals.

CCTV (Closed Circuit TeleVision)

A video system that transmits television signals over a closed (non-broadcast) system.

Color Temperature

A measure of the relative color of illumination. Most generally used to specify the automatic correction range of a color camera.

CTFID (Configuration Tool for Imaging Devices)

Bosch software used to configure and update cameras and other remote devices over video cable using Bilinx, and to save them for later use.

D

Day/Night (IR sensitive)

An AutoDome that has normal color operation in situations where there is sufficient illumination (day conditions), but where the sensitivity can be increased when there is little light available (night conditions). This is achieved by removing the infrared cut filter required for good color rendition. The sensitivity can be further enhanced by integrating a number of frames to increase the signal to the noise ratio of the camera.

Default Shutter

This feature allows the shutter speed to be set to a fast speed to eliminate motion blur and providing detailed and clear image of fast-moving objects while there is sufficient light. When light levels fall and other adjustments have been exhausted, the shutter speed reverts to the standard setting to maintain sensitivity.

Digital Image Stabilization

See Image Stabilization.

DNR (Dynamic Noise Reduction)

A digital video processing technique that measures the noise (image artifacts) in the picture and automatically reduces it.

E

Ethernet

The most commonly used local area network (LAN) access method. Ethernet complies with the IEEE 802.3 standard. The Ethernet standard supports 10 Mbps, 100 Mbps and 1000 Mbps (Gigabit) data transmission rates.

EnviroDome

AutoDome with environmental protection that allows it to be used outdoors in almost any climate.

F

Fast Address

A system for setting the address of the AutoDome remotely from the control system.

Fiber Optic Transmission

Refers to the transmission of video and/or data via optical fibers. Optical fibers are thin glass strands that are designed for light wave transmission. Video and data are digitized and transformed into a series of light pulses. The use of fiber optics for video and data transmission offers several advantages over sending electrical signals across copper wires. First, light pulses are not affected by random radiation in the environment, and thus their error rate is far lower. Fiber optics span far greater distances without need for repeaters or signal regenerators, and are far more secure as they are more difficult to tap and taps in the line can be detected. Optical fiber also provides enormous bandwidth with a single fiber capable of transmitting trillions of bits per second. There are two primary types of optical fiber; singlemode and multimode. Singlemode fiber is used when large distances must be spanned, typically greater than 2 Km/1.2 miles (see Singlemode). Multimode is typically used to span smaller distances such as the inside of buildings or on small campuses (see Multimode).

Field of View

The measure of the visible area within the camera's field of view. The larger the focal length, the smaller the field of view. The smaller the focal length, the wider the field of view.

Focal Length

The distance from the optical center of the lens to the image of an object located at an infinite distance from the lens. Long focal lengths give a small field of view (e.g. telephoto effect), while short focal lengths give a wide angle view.

F-Number

The standard measure of the lens aperture, which is the iris diameter, divided by the focal length of the lens. The lower the maximum aperture (or F-Number), the more light that passes through the lens.

F-Stop

See F-Number.

G

Gateway Address

A node on a network that serves as an entrance to another network.

Guard Tour

Allows recorded tours with a combined duration of 15 minutes. Recorded tours consist of control commands and can be played back as needed. All camera position information is stored for maximum flexibility (including pan, tilt, zoom, etc.).

H

Hybrid Streaming

The ability to simultaneously stream IP video across a local or wide area network, and CVBS video via coaxial or fiber optic cabling.

I

Image Stabilization

An algorithm that virtually eliminates camera shake in both the vertical and horizontal axes, resulting in exceptional image clarity.

Infrared Illumination

Electromagnetic radiation (light) with a longer wavelength than is visible to the naked eye. IR illumination is prominent at dusk and dawn and in incandescent lamps. IR illuminators come in the form of lamps with the appropriate filters, LEDs, or lasers. CCD sensors are less sensitive to IR than visible light, but IR can significantly increase the total illumination level, leading to a much better image at low light levels.

IP 66

The IP code (Ingress Protection) indicates the degree of protection provided by enclosures for electrical equipment. The first number indicates protection of internal equipment against the ingress of solid foreign objects. The second number indicates protection of internal equipment against harmful ingress of water. Higher digits refer to higher levels of protection. See also NEMA rating.

IP Address

The address of a device attached to an IP network. Each device on an IP network must use a unique address. Every IP data packet contains a source address (sender) and a destination address (recipient). Each IP address consists of 32-bits that are arranged into four 8-bit "octets" (x.x.x.x). IP addresses range from 0.0.0.0 to 255.255.255.255.

IPS (Images Per Second)

A measurement of the rate that pictures are displayed to create a video stream. A rate of 25 IPS (PAL) or 30 IPS (NTSC) is generally considered to be full motion video.

IRE (Institute of Radio Engineers)

A measurement of video amplitude that divides the area from the bottom of sync to peak white level into 140 equal units. 140 IRE equals 1V peak to peak. The range of active video is 100 IRE.

L

Lux

The International (SI) unit of measurement of the intensity of light. It is equal to the illumination of a surface one meter away from a single candle.

M

MJPEG

Motion JPEG is a digital video encoding standard where each video frame is separately compressed into a JPEG image.

Modal Dispersion (or Intermodal Dispersion)

A broadening of a waveform over long distances. Modal dispersion occurs in multimode fibers, because light is bounced down different reflective paths (e.g. modes) in the fiber. As the distance increases, the path (mode) begins to spread and the arrival time for the different light rays begins to vary. A large variance (dispersion) increases the chance that the optical receiver may interpret the incoming signals incorrectly. Modal dispersion is a major problem with multimode fibers.

MPEG-4

A digital video encoding and compression standard that uses interframe encoding to significantly reduce the size of the video stream being transmitted. With interframe coding, a video sequence is made up of keyframes that contain the entire image. In between the keyframes are delta frames, which are encoded with only the incremental differences. This often provides substantial compression because in many motion sequences, only a small percentage of the pixels are actually different from one frame to another.

Multimode Fiber

An optical fiber with a larger core (typically 50 or 62.5 microns) than singlemode fiber. The core can be made of plastic or glass fibers and it is the most commonly used fiber for short distances such as LANs. The name multimode comes from the fact that light rays travel down multiple reflective paths (modes) within the fiber. This allows light to enter the core at different angles, making it easier to connect to broader light sources such as LEDs (light emitting diodes). Fiber optic interfaces and multimode fiber-based transmission systems are less expensive than those based on singlemode fiber. However, the use of multiple reflective paths (modes) increases modal dispersion (see Modal Dispersion) and shortens the distances that this type of fiber optic transmission system can span.

Multi-Protocol

A protocol is a convention or standard that controls or enables the connection, communication, and data transfer between two devices. In PTZ cameras such as the AutoDome, protocol refers to the standard used to control the pan, tilt, and zoom (PTZ) operation of the camera. Since each dome camera manufacturer's PTZ protocols are unique, multi-protocol support is needed to support third party dome systems. AutoDome cameras support the Pelco "D" and "P" protocols and well as Bosch's own biphase protocol (See Biphase).

N

NEMA (National Electrical Manufacturers Association) Rating

Specification standards in reference to the operating environment for a variety of electrical devices.

NightSense

A method of boosting the sensitivity of high-resolution Bosch color cameras by 9db (a factor of 3) by combining the signal of the color image in a single monochrome picture.

NPT (National Pipe Thread)

A U.S. standard for tapered threads. NPT sizes measure the nominal inside diameter of the pipe. NPT threads form a seal as the threads compress against each other.

O

OSD (On-Screen Display)

Menus are shown on the display monitor.

P

Pan

Camera movement in the horizontal direction.

Pixel

The smallest addressable unit on a display screen or bitmapped image.

Pre-Position

A pre-selected and stored combination of pan, tilt and zoom positions that allow a set view to be recalled. Also known as Preset Shot.

Preset Tour

A sequence of preset shots combined to provide a pre-programmed tour of the area covered by an AutoDome camera.

Pressurized Dry Nitrogen Housing

A housing for outdoor applications that protects against smog, humidity, dirt and dust.

Privacy Masking

The ability to mask out a specific area to prevent it being viewed.

R

Region of Interest

The defining of a specific area within a field of view to be used by the motion detection algorithm to only look for motion within this region.

Resolution

The measure of the fine detail that can be seen in an image. For analog systems this is typically measured in Television Lines or TVL. The higher the TVL rating, the higher the resolution.

RS232/485

A communication interface for third party control and firmware upgrades to the AutoDome products.

Rule

AutoDome's alarm management subsystem that uses "if this, do that" rules to perform specific actions when an event occurs.

S

Sector Blanking

The ability to blank out video in any of the 16 pan sectors.

Sensitivity

A measure of the amount of light required to provide a standard video signal. Sensitivity values are stated in lux or foot-candles.

SensUp

Increases camera sensitivity by increasing the integration time on the CCD. This is accomplished by integrating the signal from a number of consecutive video frames to reduce signal noise.

Singlemode Fiber

An optical fiber with a silica (e.g. glass) core with a diameter of less than 10 microns. Used for high-speed transmission over long distances, it provides greater bandwidth than multimode, but its smaller core makes it more difficult to couple the light source. Singlemode fiber optic transmission systems use more expensive laser-based light sources.

Spot Focus

Activates Auto Focus for three seconds after camera movement.

Subnet Mask

Subnetting is a method that allows one large network to be broken down into several smaller ones. Depending on the network class (A, B, or C), some number of IP address bits are reserved for the network address (subnet) and some for the host address. For example, Class A addresses use 8 bits for the subnet address and 24 bits for the host portion of the address. Class A subnet masks are denoted 255.0.0.0. Class B addresses (16 bits for both the subnet and host address) use a 255.255.0.0 subnet mask. Class C addresses (8 bits for the subnet and 24 bits for the host address) use a subnet mask of 255.255.255.0.

T

TCP/IP (Transmission Control Protocol/Internet Protocol)

A communications protocol suite that provides two data transport methods. TCP is a connection-based protocol that ensures that data arrives intact and complete. UDP is a connectionless, best effort protocol that simply sends out packets. UDP is typically used for streaming media, while TCP is used when error-free delivery is required.

Tilt

Camera movement in the vertical direction.

Tri-streaming

A Bosch encoding technology that generates two separate MPEG-4 video streams and one MJPEG stream simultaneously. This advanced streaming capability enables the user to tune live viewing and recording requirements independently to meet specific site and enterprise requirements.

U

UTP (Unshielded Twisted Pair)

A variant of twisted pair cabling UTP cable is not surrounded by any shielding. The wires in a twisted pair cable are twisted around each other to minimize interference from the other twisted pairs in the cable. UTP is the primary wire type for telephone usage and the most commonly used type of networking cable.

V

Virtual Masking

A unique Bosch technology that allows for the creation of "invisible" motion masking areas. These invisible masks are similar to privacy zones, but only the AutoDome's AutoTrack II and Video Motion Detection algorithms can see them. This allows the AutoDome to ignore areas of unwanted motion.

VMD (Video Motion Detection)

An algorithm for motion detection in which the camera compares the current image with a reference image and counts the number of pixels (see Pixel) that have changed between the two images. An alarm is generated when the number of pixel changes exceeds a user-configured threshold.

X

XF-Dynamic

A highly accurate 15-bit digital signal processing technology from Bosch that extends the dynamic range of Dinion^{XF} cameras to optimally capture the detail in both the high and low light areas of the scene simultaneously, maximizing the information visible in the picture.

Z

Zoom

Changing the effective focal length to allow different fields of view to fill the picture area. Zoom can be optical, where the lens is adjusted, or digital, where a portion of the view selected is magnified electronically.

Index